

## COPUOS: Nuclear Waste

### 3, 2,1 Blastoff...

The Earth has born witness to 319 human spaceflights, and 2,271 satellites launched into the orbit since space exploration became a general means of research and discovery in 1957. In general, objects are launched into space using solar energy, which is low risk and consistent concerning its effects on the universe.

Solar power relies on the schedule of the sun and is only able to provide consistent and sufficient energy when the object which requires energy is placed in close enough proximity to be able to harvest energy efficiently. Therefore, space programs must rely heavily on nuclear power to get spacecrafts out into the galaxy where they can only then begin to harvest solar energy. The nuclear source which has been most useful and least damaging to the atmosphere thus far has been a form of generator called Radioisotope Thermoelectric Generators (RTG) which poses little to no environmental threat and have proved to be strong under extreme weather conditions.

However, when spacecrafts require a more intense amount of heat, radioisotope thermoelectric generators are not cost-effective, and space programs around the world have begun relying on another nuclear energy generator called Nuclear Thermal Propulsion Systems. Nuclear Thermal Propulsion Systems rely on something called fissions to thrust them out through the ozone layer. Fissions can even supply a space vehicle with energy for up to ten years, and unlike RTG's release small amounts of nuclear waste during their initial thrust. Although it is important to continue the work being done in outer space, there are serious questions raised that involve weighing the costs and benefits of using fission systems. Over time, they might create a buildup of nuclear waste in the global environment, a repercussion that we may not be willing to bring on. Nuclear fission systems can meet high energy needs and emit fewer greenhouse gases than fossil fuels do, but still pose great threats to our earth. Using nuclear fission requires us to operate nuclear power plants and if an accident were to occur, there could be catastrophic damage similar to that which happened in Chernobyl. Like cultivating any energy source, nuclear fission leaves behind waste by-products that have to be disposed of. Unlike most other energy sources, improperly disposing of the materials puts the environment and those who live near the disposal sites at significant risk. We have to ensure that our exploration in space is not hindering the ability for life down below to thrive.

While some countries such as The United States, Russia, and China have fully developed space programs, other countries are just starting to recognize the benefits of space exploration and research. These countries include but are not limited to Israel, Nigeria, Malaysia, Saudi Arabia, Mexico, Turkey, and Vietnam. The increased international presence in space has the potential to increase collaboration on important research projects which could harness the unique capabilities of each foreign power. However, allowing more countries the opportunity to become players in the game of space explorations gives many world powers an excuse to begin operating nuclear power plants. As the sole developers of international space

law, it is important to consider if it might be safer to eliminate the use of such a nuclear fissions to minimize the risk of the already extremely tense and nuclearized global community while allowing for the development of space programmes.

Things to consider:

Should we be biting the bullet in terms of cost, and steer completely clear of or limit the use of Nuclear Thermal Propulsion Systems? What viable options could replace them?

What should we do when a developing country wants to create a space program, but that it might only be possible using nuclear energy?

While these questions might help guide you in your thinking about this topic, there are plenty of other issues you may choose to consider to gain a nuanced perspective on the issue at hand. Remember that you are representing the views of your country. I urge you as delegates to get a thorough knowledge of your countries' respective space programs, as well as their presence or lack thereof on the forefront of space exploration. As you begin researching your topics and writing your papers keep in mind that everything will be checked for plagiarism on turnitin.com; if you have any comments, questions, concerns, or just want guidance on how to approach your preparation feel free to reach out at [avigayiladouth@gmail.com](mailto:avigayiladouth@gmail.com)!

All the best,  
Avigayil Adouth  
COPOUS Chair